CLAIMS

We claim:

1. A combination lighting and ventilating apparatus for installation in a structure having a surface, the apparatus comprising:

a main housing having a first aperture, the aperture defining a ventilating inlet and a lighting outlet;

a lamp housing recessed within the main housing, the lamp housing having first and second apertures spaced a distance from one another, the lamp housing having a portion extending outside of the main housing;

a lamp recessed within the lamp housing and the main housing; and

a fan positioned to draw air into and through the first aperture of the lamp housing, around the lamp, and through the second aperture of the lamp housing.

2. The combination lighting and ventilating apparatus as claimed in claim 1, further comprising a flange engagable with the portion of the lamp housing extending outside of the main housing, the flange adapted to engage the surface of the structure.

3. The combination lighting and ventilating apparatus as claimed in claim 2, wherein:

the lamp housing has a circular cross-section; and

the flange is annular in shape.

4. The combination lighting and ventilating apparatus as claimed in claim 1, wherein the lamp housing includes a light baffle.

5. The combination lighting and ventilating apparatus as claimed in claim 1, wherein the lamp housing has at least one outwardly-bowed wall presenting a concave wall shape to the lamp in the lamp housing.

6. The combination lighting and ventilating apparatus as claimed in claim 1, wherein the fan is located outside of the main housing.

7. The combination lighting and ventilating apparatus as claimed in claim 1, wherein the lamp housing is dimensioned to be received with the first aperture of the main housing.

8. The combination lighting and ventilating apparatus as claimed in claim 1, wherein the lamp has a first end and a second end, the first and second ends of the lamp both being recessed with respect to the surface of the structure.

9. The combination lighting and ventilating apparatus as claimed in claim 1, further comprising a motor drivably coupled to the fan, the motor located within the main housing.

10. The combination lighting and ventilating apparatus as claimed in claim 1, wherein the lamp has an external surface, the lamp housing and the external surface of the lamp defining an air passageway through which air passes from the first aperture of the lamp housing to the second aperture of the lamp housing and into the main housing.

11. A method of lighting and ventilating a room using a combination lighting and ventilating apparatus, the combination lighting and ventilating apparatus having a main housing, a lamp housing, a lamp, and a fan, the method comprising:

positioning the lamp housing within the main housing to define a recessed lamp housing, the lamp housing having a portion extending outside of the main housing;

positioning the lamp within the lamp housing and main housing to define a recessed lamp, the recessed lamp having an exterior surface exposed to air moved by the apparatus;

illuminating the room with the lamp;

driving the fan to draw air from the room into the recessed lamp housing and around the exterior surface of the recessed lamp;

moving the air drawn around the lamp into the main housing; and

venting the air from the main housing to a position outside of the room.

12. The method as claimed in claim 11, wherein the driving the fan is performed independently of illuminating the room.

13. The method as claimed in claim 11, further comprising mounting the combination lighting and ventilating apparatus to a mounting surface, wherein the main housing is recessed with respect to the mounting surface.

14. The method as claimed in claim 13, wherein the lamp has a first end and a second end, the method further comprising positioning the lamp within the lamp housing such that the first and second ends of the lamp are recessed with respect to the mounting surface.

15. The method as claimed in claim 11, wherein:

the main housing has a first aperture; and

positioning the lamp housing includes positioning at least a portion of the lamp housing within the first aperture.

16. The method as claimed in claim 15, wherein moving the air drawn around the lamp into the main housing comprises drawing air through the first aperture of the main housing.

17. The method as claimed in claim 11, wherein:

the lamp housing has a first aperture and a second aperture; and

driving the fan to draw air from the room includes driving the fan to draw air into and through the first aperture of the lamp housing, around the exterior surface of the lamp, and into and through the second aperture of the lamp housing.

18. The method as claimed in claim 11, wherein driving the fan to draw air from the room includes drawing air past walls of the lamp housing having a concave cross-sectional shape taken along an axis of revolution of the lamp housing.

19. The method as claimed in claim 11, wherein positioning the lamp housing within the main housing includes coupling the lamp housing to the main housing with a spring.

20. The method as claimed in claim 11, wherein driving the fan includes driving a motor located within the main housing to drive the fan.

21. The method as claimed in claim 11, wherein driving the fan includes driving a fan located outside of the main housing.

22. An apparatus for lighting and ventilating a room having a mounting surface for the lighting and ventilating apparatus, the apparatus comprising:

a main housing recessed with respect to the mounting surface and having a first aperture, the first aperture defining a ventilating inlet through which air is drawn into the main housing and a lighting outlet;

a lamp housing recessed within the main housing, the lamp housing having a portion that extends beyond the first aperture and outside of the main housing;

a lamp positioned within the lamp housing and recessed with respect to the mounting surface; and

a fan positioned to draw air into the lamp housing, around the lamp, and into the main housing.

23. The apparatus as claimed in claim 22, wherein the lamp is recessed within the lamp housing and the main housing.

24. The apparatus as claimed in claim 22, wherein the lamp has an exterior surface in fluid communication with air drawn into the lamp housing by the fan.

25. The apparatus as claimed in claim 22, further comprising a motor positioned within the main housing and drivably coupled to the fan.

26. The apparatus as claimed in claim 22, wherein the lamp housing has a first aperture and a second aperture opposite the first aperture.

27. The apparatus as claimed in claim 26, wherein:

the first and second apertures are axially aligned;

the first aperture of the lamp housing is smaller than the second aperture of the lamp housing; and

the lamp and the lamp housing define an air passageway therebetween, the air passageway extending between the first and second apertures.

28. The apparatus as claimed in claim 26, wherein the fan is positioned to draw air into the first aperture of the lamp housing, around the lamp, and into the second aperture of the lamp housing.

29. The apparatus as claimed in claim 22, wherein the lamp housing has a generally frusto-conical shape with outwardly-bulging walls.

30. The apparatus as claimed in claim 22, further comprising a flange adapted to be positioned adjacent the mounting surface and the portion of the lamp housing that extends beyond the first aperture of the main housing.

31. The apparatus as claimed in claim 30, wherein:

the flange is an annular flange; and

the lamp housing has a circular cross-sectional shape.

32. A method for illuminating and ventilating a room, the room comprising a mounting surface, the method comprising:

providing an illuminating and ventilating apparatus recessed within the mounting surface, the apparatus comprising a main housing, a lamp housing, a lamp having a first end and a second end, and a fan;

positioning the lamp housing within the main housing such that a portion of the lamp housing extends outside of the main housing;

positioning the lamp within the lamp housing such that the first end of the lamp and the second end of the lamp are recessed within the mounting surface;

illuminating the room with the lamp; and

driving the fan to move air into the lamp housing, around the lamp, and into the main housing.

33. The method as claimed in claim 32, wherein the main housing comprises a first aperture, and wherein positioning the lamp housing within the main housing includes positioning at least a portion of the lamp housing in the first aperture.

34. The method as claimed in claim 32, further comprising moving air into a bowl-shaped structure defined by walls of the lamp housing.

35. The method as claimed in claim 32, further comprising positioning a flange adjacent the mounting surface, the flange engaged with the portion of the lamp housing that extends outside of the main housing.

36. The method as claimed in claim 32, wherein positioning the lamp within the lamp housing includes positioning the lamp within the lamp housing and the main housing.

37. The method as claimed in claim 32, wherein the lamp has an exterior surface, and wherein positioning the lamp includes positioning the lamp within the lamp housing such that the lamp exterior surface is in fluid communication with air drawn into the lamp housing.

38. The method as claimed in claim 32, wherein the main housing comprises a first aperture adjacent the portion of the lamp housing that extends outside of the main housing, the method further comprising ventilating the room via the main housing first aperture.

39. The method as claimed in claim 32, wherein driving the fan includes driving a motor positioned within the main housing.

40. The method as claimed in claim 32, wherein driving the fan includes driving a fan located outside the main housing.

41. The method as claimed in claim 32, wherein the lamp housing includes a first aperture and a second aperture, and wherein driving the fan includes driving the fan to draw air into and through the first aperture of the lamp housing, around the lamp, and into and through the second aperture of the lamp housing.